HTTP Live Streaming

HTTP Live Streaming (also known as **HLS**) is an HTTP-based adaptive bitrate streaming communications protocol developed by Apple Inc. and released in 2009. Support for the protocol is widespread in media players, web browsers, mobile devices, and streaming media servers. As of 2022, an annual video industry survey has consistently found it to be the most popular streaming format.[2]

HLS resembles MPEG-DASH in that it works by breaking the overall stream into a sequence of small HTTP-based file downloads, each downloading one short chunk of an overall potentially unbounded transport stream. A list of available streams, encoded at different bit rates, is sent to the client using an extended M3U playlist.[3]

HTTP Live Streaming	
Filename extension	`.m3u8`
Internet media type	`application/vnd.apple.mpe` or `audio/mpegurl`[1]
Type code	.m3u8
Developed by	Apple Inc.
Initial release	May 2009
Extended from	extended M3U
Extended to	.m3u8
Standard	RFC 8216 (https://www.rfc-editor.org/rfc/rfc8216)

Based on standard HTTP transactions, HTTP Live Streaming can traverse any firewall or proxy server that lets through standard HTTP traffic, unlike UDP-based protocols such as RTP. This also allows content to be offered from conventional HTTP servers and delivered over widely available HTTP-based content delivery networks.[4][5][6] The standard also includes a standard encryption mechanism[7] and secure-key distribution using HTTPS, which together provide a simple DRM system. Later versions of the protocol also provide for trick-mode fast-forward and rewind and for integration of subtitles.

Apple has documented HTTP Live Streaming as an Internet Draft (Individual Submission), the first stage in the process of publishing it as a Request for Comments (RFC). As of December 2015, the authors of that document have requested the RFC Independent Stream Editor (ISE) to publish the document as an informational (non-standard) RFC outside of the IETF consensus process.[8] In August 2017, RFC 8216 (https://www.rfc-editor.org/rfc/rfc8216) was published to describe version 7 of the protocol.[9]

Architecture

HTTP Live Streaming uses a conventional web server, that implements support for HTTP Live Streaming (HLS), to distribute audiovisual content and requires specific software, such as OBS to

fit the content into a proper format (codec) for transmission in real time over a network. The service architecture comprises:

Server

Codify and encapsulate the input video flow in a proper format for the delivery. Then it is prepared for distribution by segmenting it into different files. In the process of intake, the video is encoded and segmented to generate video fragments and index file.

- Encoder: codify video files in H.264 format and audio in AAC, MP3, AC-3 or EC-3.[10] This is encapsulated by MPEG-2 Transport Stream or MPEG-4_Part_14 to carry it.
- Segmenter: divides the stream into fragments of equal length. It also creates an index file that contains references of the fragmented files, saved as .m3u8.

Distributor

Formed by a standard web server, accepts requests from clients and delivers all the resources (.m3u8 playlist file and .ts segment files) needed for streaming.

Client

Request and download all the files and resources, assembling them so that they can be presented to the user as a continuous flow video. The client software downloads first the index file through a URL and then the several media files available. The playback software assembles the sequence to allow continued display to the user.

Features

HTTP Live Streaming provides mechanisms for players to adapt to unreliable network conditions without causing user-visible playback stalling. For example, on an unreliable wireless network, HLS allows the player to use a lower quality video, thus reducing bandwidth usage. HLS videos can be made highly available by providing multiple servers for the same video, allowing the player to swap seamlessly if one of the servers fails.

Adaptability

To enable a player to adapt to the bandwidth of the network, the original video is encoded in several distinct quality levels. The server serves an index, called a *master playlist*, of these encodings, called *variant streams*. The player can then choose between the variant streams during playback, changing back and forth seamlessly as network conditions change.

Using fragmented MP4

At WWDC 2016 Apple announced[11] the inclusion of byte-range addressing for fragmented MP4 files, or fMP4, allowing content to be played via HLS without the need to multiplex it into MPEG-2

Transport Stream. The industry considered this as a step towards compatibility between HLS and MPEG-DASH.[12][13]

Low Latency HLS

Two unrelated HLS extensions with a *Low Latency* name and corresponding acronym exist:

- Apple Low Latency HLS (ALHLS) which was announced by Apple at WWDC2019[14]
- Community LHLS (LHLS) which predated Apple's publication and is allegedly simpler[15]

The remainder of this section describes Apple's ALHLS. It reduces the glass-to-glass delay when streaming via HLS by reducing the time to start live stream playbacks and maintain that time during a live-streaming event. It works by adding partial media segment files into the mix, much like MPEG-CMAF's fMP4. Unlike CMAF, ALHLS also supports partial MPEG-2 TS transport files. A partial media segment is a standard segment (e.g. 6 seconds) split into equal segments of less than a second (e.g. 200 milliseconds). The standard first segment is replaced by the series of partial segments. Subsequent segments are of the standard size.[16] HTTP/2 is required to push the segments along with the playlist, reducing the overhead of establishing repeated HTTP/TCP connections.

Other features include:

- Playlist Delta Updates: only sending what changed between playlists, which typically fit in a single MTU making it more efficient to load the playlists which, with large DVR windows, can be quite large.
- Blocking of playlist reload: when requesting live media playlists, wait until the first segment is also ready, and return both at the same time (saving additional HTTP/TCP requests)
- Rendition Reports: add metadata to other media renditions to make switching between ABR faster
- New tags added: EXT-X-SERVER-CONTROL / EXT-X-PART / EXT-X-SKIP / EXT-X-RENDITION-REPORT
- URL QUERY_STRING ?_HLS callbacks added

Apple also added new tools: *tsrecompressor* produces and encodes a continuous low latency stream of audio and video. The *mediastreamsegmenter* tool is now available in a low-latency version. It is an HLS segmenter that takes in a UDP/MPEG-TS stream from tsrecompressor and generates a media playlist, including the new tags above.

Support for low-latency HLS is available in tvOS 13 beta, and iOS & iPadOS 14.[17] On April 30, 2020, Apple added the low latency specifications to the second edition of the main HLS

specification.[18]

Dynamic ad insertion

Dynamic ad insertion is supported in HLS using splice information based on SCTE-35 specification. The SCTE-35 splice message is inserted into the media playlist file using the EXT-X-DATERANGE tag. Each SCTE-35 splice_info_section() is represented by an EXT-X-DATERANGE tag with a SCTE35-CMD attribute. A SCTE-35 splice out/in pair signaled by the splice_insert() commands is represented by one or more EXT-X-DATERANGE tags carrying the same ID attribute. The SCTE-35 splice out command should have the SCTE35-OUT attribute and the splice in command should have the SCTE35-IN attribute.

Between the two EXT-X-DATERANGE tags that contain the SCTE35-OUT and SCTE35-IN attributes respectively, there may be a sequence of media segment URIs. These media segments normally represent ad programs that can be replaced by the local or customized ad. The ad replacement does not require the replacement of the media files, only the URIs in the playlist need to be changed to point to different ad programs. The ad replacement can be done on the origin server or on the client's media-playing device.

Server implementations

Notable server implementations supporting HTTP Live Streaming include:

- Adobe Media Server supports HLS for iOS devices (HLS) and Protected HTTP Live Streaming (PHLS).
- Akamai supports HLS for live and on-demand streams.
- AT&T supports HLS in all formats live or on-demand.
- Ant Media Server support HLS and Low Latency HLS[19] for live and on-demand streams.
- Axis Communication IP cameras supports HLS via CamStreamer (https://www.camstreamer.com) App ACAP
- Instart supports HLS for on-demand streams.
- Amazon CloudFront supports HLS for on-demand streams.
- Bitmovin supports HLS for on-demand and live streaming.
- CDNetworks supports HLS for live and on-demand streams.
- Cisco Systems: supports full end-to-end delivery for Live/TSTV/VOD/HLS and Cloud DVR services.

- Cloudflare supports HLS for live and on-demand streams.
- EdgeCast Networks supports cross-device streaming using HLS.
- Fastly supports HLS for live and on-demand streams.[20]
- Helix Universal Server from RealNetworks supports iPhone OS 3.0 and later for live and on-demand HTTP Live or On-Demand streaming of H.264 and AAC content to iPhone, iPad and iPod.
- IIS Media Services from Microsoft supports live and on-demand Smooth Streaming and HTTP Live Streaming.
- Level 3 supports HLS live and on-demand streams.
- Limelight Networks supports HLS for some accounts.[21]
- Nginx with the nginx-rtmp-module supports HLS in live mode. Commercial version Nginx Plus, which includes *ngx_http_hls_module* module, also supports HLS/HDS VOD.[22]
- Nimble Streamer supports HLS in live and VOD mode, Apple Low Latency HLS spec is also supported.
- Node.js with the hls-server package supports hls encoding to live mode and local files conversion.[23]
- OvenMediaEngine is an open source project that supports Low Latency HLS (LL-HLS) and HLS for live streaming.
- PeerTube supports HLS
- Storm Streaming Server supports HLS as backup mode for its Media Source Extensions player[24]
- Tata Communications CDN supports HLS for live and on-demand streams.
- TVersity supports HLS in conjunction with on-the-fly transcoding for playback of any video content on iOS devices.
- Unreal Media Server supports low latency HLS as of version 9.5.[25]
- Ustream supports HLS delivery of live broadcasts. The ingested stream is re-transcoded if the original audio and video codec falls outside HLS requirements.
- VLC Media Player supports HLS for serving live and on-demand streams as of version 2.0.
- Wowza Streaming Engine from *Wowza Media Systems* supports HLS and encrypted HLS for live (with DVR), on-demand streaming and Apple Low Latency HLS spec.

Usage

- Google added HTTP Live Streaming support in Android 3.0 (Honeycomb).[26]
- HP added HTTP Live Streaming support in webOS 3.0.5.[27]
- Microsoft added support for HTTP Live Streaming in EdgeHTML rendering engine in Windows 10 in 2015.[28]
- Microsoft added support for HTTP Live Streaming in IIS Media Services 4.0.[29]
- Yospace added HTTP Live Streaming support in Yospace HLS Player and SDK for flash version 1.0.
- Sling Media added HTTP Live Streaming support to its Slingboxes and its SlingPlayer apps.[30]
- In 2014/15, the BBC introduced HLS-AAC streams for its live internet radio and on-demand audio services, and supports those streams with its iPlayer Radio clients.[31]
- Twitch uses HTTP Live Streaming (HLS) to transmit and scale the live streaming to many concurrent viewers, also supporting multiple variants (e.g., 1080p, 720p, etc.).[32]

Supported players and servers

HTTP Live Streaming is natively supported in the following operating systems:

- Windows 10 version 1507 to 2004 (Microsoft Edge Legacy) (no longer supported)
- Windows 11 Media Player
- macOS 10.6+ (Safari and QuickTime)
- iOS 3.0+ (Safari)
- Android 4.1+[33] (Google Chrome)

Windows 10 used to have native support for HTTP Live Streaming in EdgeHTML, a proprietary browser engine that was used in Microsoft Edge (now referred to as Edge Legacy) before the transition to the Chromium-based Blink browser engine. Edge Legacy was included in Windows 10 up till version 2004. It was replaced by Edge Chromium in version 20H2. Along with Windows 11, Microsoft released an updated Media Player that supports HLS natively.

Clients

Client	Platform	Live Streaming	DRM	As of Version	Editor
Safari (web browser)	macOS, iOS	Yes	Yes	6.0+ Has full HLS support.	Apple
Microsoft Edge (web browser)	Windows 10	Native support on Edge Legacy. Support via Media Source Extensions on Edge Chromium.	Yes	Supported natively on Edge Legacy's engine EdgeHTML from version 12 to 18. No native support on Edge Chromium from version 79 to present.[34]	Microsoft
Google Chrome (web browser) / Chromium	Windows, macOS, Linux, Android, iOS	OS-dependent support on Android/iOS. Support via Media Source Extensions on other OS.	Yes	30+ Android and iOS have OS-dependent native support. Other platforms require Media Source Extensions.	Google
Firefox (web browser)	Windows, macOS, Linux, Android, iOS	OS-dependent support on Android/iOS. Support via Media Source Extensions on other OS.	Yes	50.0+ for Android[35] and 57.0 for others,[36] 59.0 has enhanced support for Android[37] Other platforms require Media Source Extensions.	Mozilla
QuickTime Player (media player)	macOS	Yes	Yes	10.0+ Has full HLS support.	Apple
iTunes (music player)	Windows, macOS	Yes	Yes	10.1+[38] Has full HLS support.	Apple

Client	Platform	Live Streaming	DRM	As of Version	Editor
				To play a HLS stream, go to File > Open Stream and replace "http://" with "itls://" (for video streams) or "itals://" (for audio streams) in the stream URL.	
Windows Media Player (2022) (media player)	Windows 10, Windows 11	Yes	Yes	Does not include the original Win32 version of Windows Media Player.	Microsoft
StreamS HiFi Radio (radio player)	iOS, tvOS iPhone, iPad, and AppleTV	Yes	Yes	7.3+ Plays Internet Radio Streams HLS Audio - 100% Compliant AAC-LC/HE-AAC/xHE-AAC 2.0 Stereo/5.1-7.1 Surround ES - Elementary Stream ADTS fMP4 - Fragmented ISO MP4 Displays Synchronous Realtime Metadata and Graphics	StreamS/Modulation Index LLC
VLC media player (media player)	Windows, macOS, Linux, Android, iOS, Windows Phone	Yes	Unknown	VLC 2.x[39] has partial support up to HLS version 3 (otherwise will load as M3U playlist, individual chunks sequence).[40] VLC 3.0 has full HLS support.	VideoLAN

Client	Platform	Live Streaming	DRM	As of Version	Editor
Media Player Classic Home Cinema (media player)	Windows	Yes	Yes		Gabest, Doom9 forum users
PotPlayer (media player)	Windows	Yes	Yes		Daum Communications
MPlayer / SMPlayer / mpv (media player)	Windows, macOS, Linux, BSD	Yes	Yes		Ricardo Villalba
GOM Player (media player)	Windows	Yes	Yes		Gretech
Cameleon (live video streaming software)	Windows, macOS	Yes	Unknown		Yatko
Audacious (software) (music player)	Windows, Linux	Yes	Yes		Audacious
Radio Tray (radio player)	Linux	Yes	Yes		Carlos Ribeiro
Kodi (software) (home entertainment application)	Windows, macOS, Linux, Android, iOS	Yes	Partial	12.0 Alpha 5 and later DRM support requires a monthly/nightly build	XBMC Foundation
MythTV (home entertainment application)	Windows, macOS, Linux, FreeBSD	Yes	Yes	0.26	MythTV
JRiver Media Center (home entertainment application)	Windows, macOS	Yes	Yes		JRiver
XiiaLive (radio player)	Android, iOS	Yes	Yes	3.0+ Plays internet radio streams (audio only).	Visual Blasters LLC
Tunein radio (radio player)	Android, iOS	Yes	Yes	3.3+ Plays internet radio streams (audio only).	TuneIn
myTuner Radio (radio player)	Android, iOS, Windows Phone, Windows 8, macOS	Yes	Yes	Plays internet radio streams (audio only).	AppGeneration Software
Internet Radio Player (radio	Android	Yes	Yes	Plays internet radio streams (audio only).	MuserTech

Client	Platform	Live Streaming	DRM	As of Version	Editor
player)					
GuguRadio (radio player)	iOS	Yes	Yes	Plays internet radio streams (audio only).	Leon Fan
AIMP (media player)	Windows, Android	Yes	Unknown	4.10+ (build 1827) Plays internet radio streams (audio only).	Artem Izmaylov
Mini Stream Player (media player)	Android	Yes	Yes		JogiApp
MX Player (media player)	Android	Yes	Yes		J2 Interactive
TV Streams (media player)	macOS, iOS, tvOS	Yes	Yes	v7.1	Tiago Martinho
HP Touchpad	WebOS	Yes	Yes	3.0.5	HP
Amino x4x STB	Amino set-top boxes	Yes	Yes	2.5.2 Aminet	Aminocom.com
Dune HD TV	Dune HD set-top boxes	Yes	Yes	TV series	dunehd.com
CTU Systems Ltd	CTU Systems Ltd Eludo Play Out System	Yes	Yes	TV series	ctusystems.com
nangu.TV	Motorola set-top boxes	Yes	Yes	2.0	nangu.TV
Roku Digital Video Player	Roku set-top boxes	Yes	Yes	Roku OS / SDK 2.6	Roku
Telebreeze Player	HTML, Android, iOS, Windows, MacOS, Roku, MAG Infomir, Samsung Tizen, LG WebOS, Google Chromecast, tvOS, Amazon Fire TV, AndroidTV	Yes	Yes		Telebreeze
bitdash (SDK)	HTML5 or Flash, Web and Mobile	Yes	Yes	Version 3.0+	bitmovin
3ivx (SDK)	Windows 8, Windows Phone 8[41] & Xbox One[42]	Yes	Yes	2.0	3ivx
THEOplayer[43]	HTML5, SDK (Android, iOS,	Yes	Yes		THEO Technologies

Client	Platform	Live Streaming	DRM	As of Version	Editor
	Android TV, tvOS, Chromecast, WebOS, FireTV, Tizen)				
OvenPlayer	HTML5	Yes	Yes	0.10.0+	AirenSoft
Viblast Player (SDK)	HTML5, iOS, Android	Yes	Partial		Viblast Ltd
Flowplayer (SDK)	Adobe Flash, iOS, Android, HTML5 (hlsjs plugin)	Yes	Yes	The Flash HLS plugin is available from GitHub.	Flowplayer Ltd
JW Player (SDK)	Adobe Flash, iOS, Android, HTML5	Yes	Yes	HLS is provided in all JW Player versions as of JW8 (latest)	JW Player
Radiant Media Player (SDK)	Adobe Flash, HTML5	Yes	Yes	1.5.0[44]	Radiant Media Player
Yospace (SDK)	Adobe Flash	Yes	Yes	2.1	Yospace
Onlinelib (SDK)	Adobe Flash	Yes	Yes	2.0	Onlinelib.de
VODOBOX HLS Player (online service)	Adobe Flash, HTML5, iOS, Android	Yes	Yes		Vodobox
NexPlayer (SDK)	HTML5 (MSE Browsers), Android (mobile, TV, STB), iOS, Chromecast, Windows, Mac, Linux, Tizen, WebOS	Yes	Yes		NexStreaming
ffplay/avplay (multimedia framework)		Yes	Partial		FFmpeg/Libav
GPAC (multimedia framework)		Yes	No	0.5.0	Telecom ParisTech inc.
QuickPlayer (SDK)	Android, iOS, Windows 7, 8, 8,1 and 10	Yes	Yes		Squadeo
hls.js (MSE)	MSE Browsers	Yes	Unknown		Dailymotion open source[45][46]
hasplayer.js (MSE)	MSE Browsers	Yes	Unknown		open source[47]

Client	Platform	Live Streaming	DRM	As of Version	Editor
Hola Player (video player)	HTML5, Adobe Flash, iOS, Android	Yes	Yes	All versions	Hola Ltd open source[48]
Shaka Player (SDK)	HTML5 (MSE Browsers)	Coming soon	Partial	2.1	Open Source[49][50]
Fluid Player (Video Player)	HTML5 (MSE Browsers)	Yes	Yes	2.2.0+	Fluid Player OSS[51][52][53]
Video.js	MSE Browsers. Flash with flashls source handler fallback.	Yes	Yes		Open source
foobar2000 (audio player)	Windows	Yes	Unknown	1.6.1	Peter Pawłowski
QMPlay2 (media player)	Windows, macOS, Linux	Yes	Unknown	It has VU meters and a spectrum analyzer	Open source[54]

Servers

Product	Technology	As Of Version	Editor	Free	Notes
ANEVIA Genova Live	Bundled software for transcoding to H.264 & HEVC, and packaging to HLS, MPEG-DASH, MS Smooth Streaming		Anevia	No	
AvProxy	Light software for live streaming Input and output streams : HTTP(S), HLS(S)/AES-128, UDP, RTP, MPTS demux	2.19[55]		Yes	Proprietary but free for use
bitcodin		SaaS	bitmovin	No	[56]
VLC		1.2		Yes	
Video Cloud		SaaS	Brightcove	No	[57]
IIS Media Services		4.0[29]	Microsoft	No	
Antik Media Streamer	Ingest Module (UDP/HTTP Transport Stream, Backup Stream with auto-switching, stream status monitoring and logging), Stream replication UDP/HTTP, HLS streaming, Video archive with snapshots, Server-side Timeshift, time zone shifting with multiple time zones, Stream Encryption using AES and key-rotation (with Antik Key Server)	3.0	Antik technology	No	
Adobe Media Server	Live and VOD streaming as origin and edge server	5.0	Adobe	No	
Ant Media Server	Supports HLS and Low Latency HLS in standalone and cluster modes. It can ingest WebRTC, RTMP, RTSP and can create HLS and Low Latency HLS playback endpoints	2.11[58]	Ant Media	No	HLS is a out of the box feature in Community and Enterprise Editions. Low Latency HLS is a plugin that is compatible in Community and Enterprise Editions.
Evostream Media Server	Cross-platform including embedded systems such as encoders, IP cameras, DVRs, and more. Supports: Adobe Flash RTMP, RTMPS, LiveFLV, full transcoder for	1.6.5	EvoStream	No	

Product	Technology	As Of Version	Editor	Free	Notes
	creating lower bitrate streams, HTTP Live Streaming (HLS) for streaming to iPhones, iPads and Androids, HTTP Dynamic Streaming (HDS) for Adobe Air, Microsoft Smooth Streaming (MSS) for Microsoft devices, RTSP with RTP or MPEG-TS, MPEG-TS (unicast/multicast), compatible Live Encoding, strong security for your content (Verimatrix DRM, HLS AES encryption, Stream Aliasing, Watermarking), built-in clustering mechanism and more.				
MythTV		0.25	MythTV	Yes	
MACNETIX VOD-Server		3.0	MACNETIX	No	
Anevia NEA Live Servers	Transcapsulation: from one input, several outputs (HLS, MS Smooth Streaming, ADS Flash, MPEG-DASH)		Anevia	No	
Packet Ship OverView:Origin Server	Capture from IPTV multicast and chunking to HLS for multi-bandwidth live streams, with AES encryption	2.1	Packet Ship	No	
nangu.TV Streamers	on-the-fly adaptation: content is stored once enabling several outputs (HLS, MS Smooth Streaming, ADS Flash, MPEG-DASH)		nangu.TV	No	
TVersity Media Server		1.9	TVersity	No	Pro Edition only
Helix Universal Server	Live + VOD HLS with Verimatrix DRM integration, ABR, Multi-Resolution, AES encryption	15.0+	RealNetworks	No	High performance HLS (12,000+ concurrent devices)
Wowza Streaming Engine	Live and VOD streaming as origin and edge server with DVR, DRM Integration and Transcoding for adaptive delivery. Outputs to MPEG-DASH, HLS, HDS, Smooth Streaming, RTMP, and RTSP. Supports Apple Low Latency HLS.	2.0+	Wowza Media Systems	No	

Product	Technology	As Of Version	Editor	Free	Notes
Unified Streaming Platform	Muxes media content from one unified source to multiple outputs (Smooth Streaming, HDS, HLS and MPEG-DASH)		Unified Streaming	No	
VODOBOX Live Server	Outputs HTTP Live Streaming with Adaptive bitrate streaming (up to 6 simultaneous qualities). Video codecs : AVC H.264 / HEVC H.265 Audio codecs : MP3 / AAC Transport layers : HTTP / FTP / Amazon AWS S3 / Microsoft Azure Web Storage / writing to disk (NetBios / Samba) Hostings : internal HTTP Web server and/or external Web servers (ex: Apache HTTP server, Microsoft IIS, Nginx, etc.)	1.0	Vodobox	Yes	Supports input live streams from DVB-T devices, satellite receivers (Dreambox), IP streams (RTSP, RTMP, MMS, HTTP), Microsoft DirectShow drivers (video capture cards, live production software, camera). Encoder is compliant with Intel Quick Sync Video and Nvidia NVENC hardware acceleration.
Flixwagon Platform Video Server			Flixwagon	No	
StreamCoder Live Encoder	Realtime video encoder (inputs : DVB/IP stream or video signal). Supports multi-bitrates and multi-languages		Ektacom	No	
Apache HTTP Server			Apache Software Foundation	Yes	
Unreal Media Server		9.5	Unreal Streaming Technologies	No	Latency of live streams can be as low as 2.5 seconds over the Internet
Nimble Streamer	RTMP / RTSP / Icecast / MPEG-TS to ABR HLS. MP4 / MP3 to VOD HLS. Apple Low Latency HLS spec is supported.	1.0.0-x	WMSPanel	No	
Nginx-rtmp-module	Free module for nginx server with support of HLS live streaming. Compliant with iOS and Android.	0.9.x	Roman Arutyunyan	Yes	
Nginx Plus	VOD HLS as origin		NGINX, Inc.	No	

Product	Technology	As Of Version	Editor	Free	Notes
OvenMediaEngine	Supports Low Latency HLS (HLSv7+), HLS (HLSv3+), ABR LL-HLS, and ABR HLS for live streaming	0.16.0+	AirenSoft	Yes	GNU Affero General Public License
Flussonic Media Server	Multi-platform support for HTTP, RTSP, RTMP, DASH, Time Shifting, DVR Functions with Unlimited Rewind Capabilities HLS streaming specific to iOS platform support.	3.0+	Flussonic, LLC.	No	Supporting a magnitude of features with full HTTP support.
VBrick Distributed Media Engine ("DME")		2.0	VBrick Systems, Inc.	No	Live and stored HLS. Live can be transmuxed from several input mux including RTP, RTMP, and MPEG-TS using H.264 encoding
Telebreeze Coder / Media Server	Input streams and interfaces: UDP, TCP, RTP, HLS, HTTP, RTMP (MPEG-TS) Output Streams: HLS, HTTP, UDP Preprocessing: Resize, Deinterlace, Frame Rate Conversion, Audio Resampling, Logo Rendering		Telebreeze	No	
LEADTOOLS Media Streaming Server SDK	Converts files on the fly to Adobe HDS, Apple HLS, MPEG-DASH, Microsoft Smooth Streaming, RTSP.	19.0	LEAD Technologies	No	
MC-ROUTE	Multifunctional software for live stream routing and protocol conversion	4.4	Teracue	No	Supported protocols: TS over UDP, RTP, TCP, HLS, HTTP, RTSP/RTP
Direkt router	Live hardware decoder with SDI, NDI out and transcoding	4.1	Intinor	No	Supported protocols in: TS over UDP, RTP, TCP, HLS, HTTP, RTMP out: UDP, RTP, TCP, RTMP
Elecard CodecWorks	Professional platform for real-time encoding and transcoding into HEVC/H.265, AVC/H.264 and MPEG-2 video supporting adaptive bitrate streaming via HLS and MPEG-DASH protocols.	4.6	Elecard	No	Supported protocols: TS over UDP/RTP/SRT, RTMP Output, HLS, MPEG-DASH output, UDP/RTP/SRT, NDI

Product	Technology	As Of Version	Editor	Free	Notes
TAC - Teracue Application Cloud	Professional stream routing and real-time encoding/transcoding platform supporting various audio and video codec and streaming protocols	1.0	Teracue	No	Supported protocols IN and OUT: UDP, RTP, RTSP, RTMP, TCP (Client/Server), HLS, HTTP, FEC, SRT Supported protocols IN only: SDVoE and NDI
Peertube	A free and open-source, decentralized, ActivityPub federated video platform using HLS peer-to-peer technology to reduce load on individual servers when viewing videos.	1.3.0		Yes	Videos are made available via HTTP to download, but playback favors a peer-to-peer playback using HLS.

Live Encoders

Product	Technology	As Of Version	Editor	Free	Supported Protocols
ENC-400 Series	Live hardware encoder with SDI or HDMI	1.0	Teracue	No	TS over UDP, RTP, TCP, RTP/RTSP, RTMP push, HLS
WELLAV NB100	Live Streamcast with SDI or HDMI, CVBS	1.0	Wellav Technologies	No	TS UDP, RTP, RTP/RTSP, RTMP, HLS
ZyPerMX4	Live hardware encoder with 4 HDMI inputs	2.14	ZeeVee	No	TS over UDP, RTP, H.264/MPEG-4 AVC, HLS, RTMP, RTSP
ZyPerMX2	Live hardware encoder with 2 HDMI inputs	2.14	ZeeVee	No	TS over UDP, RTP, H.264/MPEG-4 AVC, HLS, RTMP, RTSP
Elecard CodecWorks	Live software encoder with up to 8 SDI/HDMI or NDI inputs	4.6	Elecard	No	TS UDP, RTP, SRT, RTMP push, HLS, Mpeg-DASH
StreamS Live Encoder	Live software/hardware audio encoder with professional interface options	3.0	StreamS	No	HLS/DASH ES, fMP4, FTP, FTPS, HTTP, HTTPS, DAV, DAVS, Akamai, Amazon S3, Microsoft BLOB, Google Cloud AAC-LC/HE-AAC/xHE-AAC - Synchronous Realtime Now Playing and Control Metadata and Graphics

VOD encoders

Product	Technology	As Of Version	Editor	Free	Notes
VODOBOX HLS Encoder	Converts video files into pre-encoded HLS Adaptive bitrate streaming, ready to be hosted and broadcast through Apache HTTP server / Microsoft IIS / Nginx Web servers. Supports AVC H.264 / HEVC H.265 / MPEG-TS / Fragmented MP4 / Alternate Audio / Alternate Subtitles.	1.0	Vodobox	Yes	Transcodes classic video files (avi, mp4, m2ts, mkv, ...) into HLS streams with multi-qualities for VOD or replay usage. Hardware encoding can be accelerated by Intel Quick Sync Video and Nvidia NVENC technologies.
MediaGoom HLS Packager[59]	Convert mp4 files encoded with multibitrate to HLS chunks.	0.1	Mediagoom	Yes	Support both Linux and Windows.

See also

- Adaptive bitrate streaming
- Dynamic Adaptive Streaming over HTTP

References

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